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# Abstracts

[*Sources of patent abstracts are cited if they are not from printed copies or official abridgments.*]

## ORGANIC FIBERS I

### Vegetable fibers I 1

*COTTON.* Production and characteristics of world's cotton crops. E. Lord. *J. Textile Inst. 37,* T151-79 (Aug. 1946).

The growth and characteristics of cotton produced in various areas of the world are surveyed. Cotton varieties considered include those grown in the West Indies (including the Windward Islands and Barbados), Dominican Republic, Cuba, Haiti, Leeward Islands, Bahamas, Jamaica, Trinidad, Tobago, Puerto Rico, Guadaloupe, Martinique, and the Dutch and American West Indies. The fiber characteristics and spinning values of the commercial varieties of West Indian Sea Island cotton, miscellaneous Sea Island cottons, and West Indian cottons other than Sea Island are discussed and tabulated.

LWR TTD:10-46.

*COTTON VARIETIES.* New Russian cotton. Anon. *Textil och Konfektion 6,* 280 (Aug. 1946).

In addition to the colored cottons which have been bred in Russia, a new ultrafine cotton is reported which has very small blossoms and fine fibers, permitting production of soft fabrics with silky fineness. Another new Russian cotton will withstand extraordinary temperature fluctuation, including frost, and has high resistance to insects; another grows about 9″ high and bears huge bolls. TTD:10-46.

*FLAX.* New apparatus for retting flax and other fibrous plants. Anon. *Textielwezen 2,* 315-6 (July, 1946).

A new flax retting layout made by N. V. Epuro Co. of Amsterdam is described and illustrated. It doubles production capacity, lessens corrosion, improves the product as to quality and yield, and is safer than previous apparatus. TTD:10-46.

*FLAX.* The tow problem. Anon. *Textielwezen 2,* 263-4 (June, 1946).

An improved machine for producing spinnable fibers from flax tow has the advantage of mechanical blending, thus saving hand labor, so that production costs are lowered while quality of product is increased by reason of superior blending. The machine can produce about 1 metric ton of processed tow per day. TTD:10-46.



*FLAX.* Staple flax fiber. Albert Dujardin, Belgian Flax Exp't. Station. *Textielwezen 2,* 305-7 (July, 1946).

Staple fiber made from flax by the cottonizing process is not a single-cell fiber like cotton but is a bundle of fine fibers cut to the desired length. In this bundle the individual fibers are still bound together by the natural pectin-glue complex. Since the fiber is bleached in the loose state it undergoes no loss of weight or strength. The fiber has special merits for use in blends with wool, rayon staple, cotton and other fibers. TTD:10-46.

*LINEN.* Flax retting. 1. Natural retting methods. 2. Artificial retting. G. van der Waele. *Textielwezen 2,* 71-2, 173-5 (Feb., Apr. 1946).

Natural retting is performed either in still or in running water and is sometimes aided by selective bacterial retting. Apparatus is described and illustrated with respect to the use of anaerobic retting bacteria in a controlled process which is complete in 3 or 4 days. TTD:10-46.

*LINEN INDUSTRY.* Recent problems of linen industry. A. J. Turner, Linen Industry Research Ass'n. *J. Textile Inst. 37,* P371-9 (July, 1946).

A general review of production and research problems.

LWR TTD:10-46

*FLAX DECORTICATOR.* Karl Kaiser (to California Central Fiber Corp.). USP 2 402 634, June 25, 1946.

An improved portable decorticator for bast fibers, particularly though for flax, achieves great simplicity and efficiency in separation and removal of shive from the fiber by means of a fluffer and cleaner working in coöperation with the brake roll. TTD:10-46.

*HEMP FIBERS.* Chas. R. Carpenter. USP 2 405 401, Aug. 6, 1946.

Hemp fibers are separated from the shive by means of an improved scutching mechanism, which does not break or otherwise damage the fibers. This mechanism consists essentially of 2 scutchers, each with a pair of revolving beaters which are positioned at opposite ends of a conveyor belt which feeds bundles of stalks

first to one pair of beaters and then, reversing, to the other pair in alternation. TTD:10-46.

COTTON QUALITY AS RELATED TO MARKETING. John Wright. Pamphlet of USDA, Production & Marketing Administration; 1946; 6 pp. TTD:10-46.

## Animal fibers I 2

*HARRIS TWEED INDUSTRY.* Anon. *Textile Age 10,* No. 7, 100 (July, 1946).

A brief background note on what is probably Britain's oldest wool fabric industry. TTD:10-46.

*MECHANICAL FELTS.* W. S. Shaw, Porritts & Spencer, Ltd. *J. Textile Inst. 37,* P72-4 (Apr. 1946).

A general discussion of both woven and pressed felts including some of the scientific aspects of felting.
LWR TTD:10-46.

*NONFELTING WOOL.* Recent advances in commercial production and utilization of nonfelting wool and wool fabrics. Henry Phillips. *J. Textile Inst. 37,* P302-16 (July, 1946).

A description is presented of the wet chlorination, dry chlorination, and enzyme processes for producing shrinkage resistance.
LWR TTD:10-46.

*WOOLEN MILL.* Orr Felt & Blanket Co. Anon. *Textile Age 10,* No. 6, 27-8, 30, 32-4, 36, 38 (June, 1946).

An illustrated review of a mill and some of its products. TTD:10-46.

## Artificial fibers I 3

*DRYING ARTIFICIAL FILAMENTS.* Camiel de Brabander (to Am. Viscose Corp.). USP 2 402 609, June 25, 1946.

Artificial filaments after extrusion are subjected to a uniform heating by means of a high frequency electric current and then stretched so as to impart a high degree of strength and extensibility. TTD:10-46.

## Cellulosic rayons I 3 a

*ACETATE STAPLE.* H. Wild. *J. Textile Inst. 37,* P190-7 (July, 1946).

The use of acetate staple in blended yarns is best accomplished by a study of the characteristics of the fibers to be used along with a study of the acetate staple. The dyeing and blending of various yarns based on acetate staple are described.
LWR TTD:10-46.

*DEVELOPMENTS IN RAYON* and spun rayon fabrics. R. S. Greenwood. *J. Textile Inst. 37,* P181-9 (July, 1946).

The various economic and technical factors which influence the acceptance of a fiber are pointed out. Some neglected techniques in rayon production are mentioned which might generally advance the position of the fiber.
LWR TTD:10-46.



*NEW RAYONS AND OLD FIBERS.* A. Johnson. *J. Textile Inst. 37,* P403-11 (July, 1946).

Fine yarns too weak to be woven alone can be woven with a soluble alginate rayon which is removed from the cloth in the normal scouring process, thus extending the limit in fineness of ordinary fabric. The technique for producing and utilizing the supporting alginate rayon threads is described, along with some properties of very fine fabrics produced.
LWR TTD:10-46.

*STRUCTURE OF CELLULOSIC RAYONS.* III. Chain-length determinations in cuprammonium solution. Frank Howlett, Elizabeth Martin & Joan Swan. IV. Solubility and fractionation of secondary cellulose acetate. F. Howlett & A. R. Urquhart. *J. Textile Inst. 37,* T77-88, T89-112 (Apr. 1946).

Solutions of cellulose and cuprammonium hydroxide are investigated, thus extending earlier work. At the concentrations investigated the anomalous flow of solutions of rayons is found to be relatively unimportant. The solubility of a cellulose acetate rayon in a series of mixtures of a solvent with nonsolvent was investigated in order to evolve a suitable fractionation technique and to determine the effect of chain-length heterogeneity and its predictability from a solubility curve. An acetone-butyl acetate system, adopted for the fractionation, gave good reproducibility without degradation although complete removal of the butyl acetate from the fractionated material was difficult because of its low volatility.
LWR TTD:10-46.

*THINNER SPUN RAYONS?* Margot Duff. *Silk & Rayon 20,* 812, 814 (July, 1946).

The future of spun rayon fabrics is briefly surveyed. TTD:10-46.

*VISCOSE RAYON.* Continuous spinning and processing of viscose rayon. Anon. *Rayon Textile Monthly 27,* 418-20 (Aug. 1946).

In a description of Industrial Rayon Corporation's process, twist-setting of yarn by means of a high frequency current (Lektroset) is referred to and described in some detail.
HAM TTD:10-46.

*OILING CELLULOSE DERIVATIVE FIBERS.* Geo. W. Seymour & Walter Brooks (to Celanese Corp. of Am.). USP 2 406 408, Aug. 27, 1946.

A conditioning liquid for cellulose derivative fibers that facilitates their further processing (i. e. in drafting, spinning, twisting, weaving, knitting, and the like) consists preferably of white mineral oil 29, oleic acid

21.5, and raw vegetable oil (e. g. olive oil, rice oil, or peanut oil) 10.5 parts, to which is added (after cooling to about 10°C) 6.5 parts fuming $H_2SO_4$. To this is then added diamyl phenol 5 parts and a mixture of an alkylolamine 11.6, NaOH 1.6, and water 14 parts. TTD:10-46.

*STAPLE FIBER PRODUCTION.* John E. Spalding & Dan B. Wicker (USP 2 407 108), Robt. A. Smith (USP 2 407 109) (to Am. Viscose Corp.), Sept. 3, 1946.

Bundles of staple fibers are cut and crimped by an improved method wherein the bundles after being cut are hurled by means of an air jet, against (preferably) a flanged rotating drum. TTD:10-46.

*CELLULOSE ACETATE.* C. Diamond (to Courtaulds, Ltd.). Brit. P. 575 661. *Textile Mfr. 72,* 74a (June, 1946).

Cellulose acetate fibers, filaments, etc., are extruded by wet spinning into a coagulating bath ($H_2SO_4$ in the esterification solution being neutralized by adding triethanolamine). By this process fibers can be spun directly, thus eliminating precipitating, washing, drying, and dissolving the secondary cellulose acetate. TTD:10-46.

*CELLULOSE XANTHATE.* Wm. R. Schmitz, Jr. (to Can. Industries, Ltd.). Can. P. 436 608, Aug. 27, 1946.

Alkaline metal cellulose xanthate is produced in a continuous process by forming a liquid slurry composed of alkali metal cellulose and $CS_2$ and heating to between 45 and 110°C, and then cooling to between 15 and 30°C and dissolving the xanthate in NaOH solution. TTD:10-46.

*CELLULOSE ESTERIFICATION.* Clifford I. Haney & Mervin E. Martin (to Camille Dreyfus). Can. P. 436 791, Sept. 3, 1946.

In the esterification of fibrous cellulosic materials they are treated for 10-15 minutes with an aqueous alkali solution (15-20%) to cause a swelling of the fibers, then washed free of alkali, dehydrated with ethyl acetate, and distilled to remove the water. TTD:10-46.

*RAYON.* Fritz Isler (to Bata A.-G.). Swiss P. 240 601, Feb. 8, 1943.

Apparatus for continuous production of endless artificial filaments. TTD:10-46.

*RAYON.* J. Spälty (to Bata A.-G.). Swiss P. 240 766, Jan. 6, 1944.

Process for working up spent coagulation baths from the dry spinning of viscose. TTD:10-46.

*RAYON.* Société Rhodiaceta. Swiss P. 240 859, Mar. 9, 1944.

Process for making extruded and drawn filaments, and products made by this method. TTD:10-46.





## Protein fibers — I 3 b

*FIBER FROM PEANUT PROTEIN.* I. Production and properties of Sarelon. A. L. Merrifield & A. F. Pomes, Southern Regional Research Laboratory. *Textile Research J. 16,* 369-77 (Aug. 1946).

Sarelon, a peanut protein fiber developed by Southern Regional Research Laboratory, has a hand and warmth like wool and a dye affinity similar to other protein fibers. Like such fibers it has a low strength. A formaldehyde treatment gives satisfactory resistance to boiling, but acetylation does not. Sarelon's resistance to carbonization is the same as that of wool.
LWR TTD:10-46.

*PROTEIN SYNTHETIC FIBERS.* D. Traill. *J. Textile Inst. 37,* P295-301 (July, 1946).

The preparation and properties of some synthetic protein fibers are generally described.
LWR TTD:10-46.

*HARDENING PROTEIN FIBERS.* Rudolf Signer. USP 2 404 665, July 23, 1946.

Protein fibers, dry-spun from an alkaline casein mass, are hardened, treated with formaldehyde then with dilute acid, stretched while wet, and treated with a chromium salt solution, then washed and dried, in order to increase the strength of the fibers. TTD:10-46.

*PROTEIN FIBERS.* R. H. K. Thomson & S. R. Swift (to Imperial Chemical Industries, Ltd.). Australian P. 122 091, Sept. 5, 1946.

Protein fibers, filaments, and threads are spun from a caustic alkaline solution of peanut globulins, the concentration of caustic alkali in the solution being not less than 0.8%. TTD:10-46.

*PROTEIN FIBER.* Rudolf Signer. Swiss P. 240 767, Apr. 20, 1944.

Process for stabilizing dry-spun protein filaments. TTD:10-46.

## Synthetic fibers — I 4

*NYLON.* Developments in preparatory process machines for nylon yarns. H. Marsden, Universal Winding Co. *J. Textile Inst. 37,* P263-70 (July, 1946).

Because of the specific properties of nylon yarn it is held that successful nylon spinning cannot be accomplished unless: (1) uniform minimum yarn tension be obtained; (2) packages with a small yarn thickness be produced with density as small as is comparable with good yarn travel and package build with an open structure; (3) atmospheric conditions be controlled; (4) static electricity generation be restricted; (5) cutting power of the yarns be reduced so that delicate machine parts are not overly affected. A new

machine and a modified old machine for producing yarns under these conditions are described.
LWR TTD:10-46.

*NYLON.* Some physical properties of nylon. J. B. Speakman & A. K. Saville. *J. Textile Inst. 37,* P271-94 (July, 1946).

The heats of reaction of oriented and undrawn nylons with water have been calculated from the water adsorption isotherms at 20-35°C. The dimensional changes accompanying water adsorption were also studied preparatory to rigidity determinations of nylon at different relative humidities. The behavior of nylon under longitudinal stress at different relative humidities, temperatures, and pH value is also discussed.
LWR TTD:10-46.

*NYLON SHEETS.* Anon. *Chem. Industries 59,* 92, 94 (July, 1946).

Solid nylon sheeting is being made in experimental lots on a special machine which forces the nylon out through a slot. A continuous strip of any desired thickness can be obtained. TTD:10-46.

*ANTISTATIC TREATMENT OF VINYL RESINS.* Wm. N. Stoops & Alexander L. Wilson (to Carbide & Carbon Chemicals Corp.). USP 2 403 960, July 16, 1946.

Vinyl resin fibers, filaments, yarns, films, etc., are treated, preferably after scouring and rinsing, with a polyalkylene polyamine, particularly a polyethyleneimine, in order to reduce their tendency to accumulate electrostatic charges. This treatment does not reduce tensile strength, flexibility, elasticity, and other important properties of vinyl resins; and the antistatic protection lasts the normal life of the article.
TTD:10-46.

*POLYACRYLONITRILE.* Ray C. Houtz (USP 2 404 713, 2 404 717-22, 2 404 724, 2 404 727), Arthur O. Rogers (USP 2 404 715, 2 404 725), Geo. H. Latham (USP 2 404 714), Virgil L. Hansley (USP 2 404 716), Richard R. Merner (USP 2 404 723), and Wm. H. Charch (USP 2 404 726), (to E. I. du Pont de Nemours & Co.), July 23, 1946.

Tough, flexible, dense yarns, films, tubes, and the like, that are substantially colorless may be produced from a solution of polyacrylonitrile in a volatile organic solvent, at least 85 wt. % of the polymer being acrylonitrile. TTD:10-46.

## Fiber applications I 5

*BONDED COTTON FIBERS.* Jos. Goldman (to Fibre Products Laboratories, Inc.). USP 2 407 548, Sept. 10, 1946.

After drafting, a web of unspun fibrous material, especially cotton, is tightly bonded together under a lengthwise tension to form a sheet material of uniform density and thickness which has a greater tensile strength for a given gage than nonferrous metals such as aluminum. TTD:10-46.



## INORGANIC FIBERS II

*GLASS FIBER INSULATION.* Frank J. Soday (to United Gas Improvement Co.). USP 2 407 582, Sept. 10, 1946.

A resilient insulating bat is composed of mineral fibers, particularly glass, and also asbestos, rock wool, etc., impregnated with an isoprene-resin emulsion.
TTD:10-46.

*GLASS FABRIC TAPE.* J. H. Emigh (to Johnson & Johnson Pty., Ltd.). Australian P. 122 092, Sept. 5, 1946.

A glass fabric adhesive tape suitable for electrical insulation, has a binder consisting of a cellulose ether, cellulose ester or a polyvinyl ester. TTD:10-46.

*SPINNING BUCKET.* Henry M. Richardson (to Can. General Electric Co.). Can. P. 436 498, Aug. 20, 1946.

A spinning bucket that withstands the high stresses of centrifugal forces consists of a number of layers of glass fabric impregnated with an acid resistant phenolic binder. TTD:10-46.

## FIBER TO YARN III

### Fiber preparation III 1

*CARD GRINDING SYMPOSIUM.* Lamar Fogel & Seth Carter. *Textile World 96,* No. 6, 116-17, 206 (June, 1946).

Opinions of practical mill men on a much debated subject seem to favor standardization only within the mill, not throughout the industry. TTD:10-46.

*CARDING* of cheviot and crossbred skin wools. Anon. *Wool Record & Textile World 69,* 1392-3 (June 27, 1946).

Factors influencing yarn production are discussed, among which are ring doffer and tape condensers, fly strippers, and oiling. TTD:10-46.

*CARDING AND COMBING* of staple fiber eliminated. A. J. Kernan. *Textile World 96,* No. 6, 123, 192, 194 (June, 1946).

The Greenfield method (from Courtauld's plant of that name) of tow-to-top is described. By this method a uniform sliver is produced direct from tow that is equal to combed sliver. TTD:10-46.

*DRAWING.* Balancing in worsted open drawing. Anon. *Wool Record & Textile World 70,* 134 (July 18, 1946).

The balancing process, to even out irregularities in worsted drawing is briefly described. TTD:10-46.

*DRAWING.* Improved drawing by covering pressure rolls with a new product. Jacques Carlier. *Textielwezen 2,* 316-7 (July, 1946).

Vulcascot covers for pressure rolls are easily applied with the aid of a special rubber cement. They are seamless and are not affected by atmospheric conditions. The roll covers are oilproof and have a high coefficient of friction, thus providing uniform and effective drawing. TTD:10-46.

*DRAWING* sliver to roving in one operation. W. A. Hunter, Howard & Bullough, Ltd. *Textile Mfr. 72,* 295-7 (June, 1946). From *Platt's Bull.* (Mar.-Apr. 1946).

An illustrated lecture is summarized. TTD:10-46.

*FIBER BREAKAGE* in worsted carding. P. P. Townend & E. Spiegel. *J. Textile Inst. 37,* T58-76 (Mar. 1946).

In worsted carding less breakage is observed when the wool is carded at regains greater than 20%. The addition of grease and soap does not have a detrimental effect on fiber breakage but does not materially prevent breakage. Increased fiber breakage is observed with increasing throughput. Less breakage occurs at high than at low swift speeds. Adjustment of the rollers in the licker section on the machine does not produce any significant change in the fiber length or the amount of breakage of fiber. A large amount of breakage occurs at the licker-divider points of contact because of the reversal of fibers at these carding points. A reduction of breakage occurs when the card teeth are sharp and smooth. The greatest amount of breakage is due to the entangled state of the scoured wool when fed to the card. When dry pulled tops are fed to the card the breakage during carding is relatively small. Since, however, wool is normally entangled during scouring a modified form of feed mechanism which overcame this difficulty, was developed.
LWR TTD:10-46.

*MAXIMUM DRAWING EFFICIENCY.* Anon. *Wool Record & Textile World 69,* 1394-5, 1397, *70,* 17-19 (June 27, July 4, 1946).

Maximum productive efficiency in drawing is influenced by these factors: finding maximum speeds at which the machines may be run without excessive vibration or uneconomic machine repairs, fixing the dram weight or slubbing at as heavy a weight as possible, and engaging as high a standard of employee as conditions permit. These and other less important factors are discussed in some detail. TTD:10-46.

*NEW COMBING OILS.* Anon. *Wool Record & Textile World 69,* 1288-9 (June 13, 1946).

Thickening of oil upon storage (through oxidation) and the effect upon spinning qualities of the wool top are discussed with particular reference to a new combing oil consisting of a blend of vegetable and mineral oils. TTD:10-46.





*OILS* used in processing of textile fibers. G. E. Cowlishaw. *J. Textile Inst. 37,* P45-50 (Mar. 1946).

In a broad outline of the subject of fiber lubrication the chemical types of oils and mixtures of oils used are briefly discussed as well as some of the physical and chemical characteristics required for adequate oiling.
LWR TTD:10-46.

*GILLING.* Mario Ottomano (USP 2 406 626) and Albert J. Signoret (USP 2 406 641-2) (to Am. Safety Razor Corp.), Aug. 27, 1946.

In the production of yarn, especially from rayon staple filaments, continuous filament is reduced to short staple lengths by means of an improved gilling operation whereby cutting blades are associated with the faller bars in the gill box, thus eliminating the guillotining process. TTD:10-46.

*DRAFTING OF FIBERS.* Ernest L. Richardson (to General Electric Co.). USP 2 407 100, Sept. 3, 1946.

An improved means of drafting fibers, which assures a regular, uniform sliver of even density, consists essentially in directing a stream of air under constant pressure against the masses of fibers as they pass between a pair of drafting rollers. TTD:10-46.

*CARDING.* J. K. Clegg (to Platt Bros. & Co., Ltd.) Brit. P. 575 197. *Textile Mfr. 72,* 333 (June, 1946).

Dust and fiber particles are extracted from carding engines by means of an air junction box placed under the taker-in and cylinder compartments. TTD:10-46.

*DRAWING FRAME.* A. Wirz. Brit. P. 575 540. *Textile Mfr. 72,* 334 (June, 1946).

A regular yarn is produced on fly frames by means of an improved roller construction. TTD:10-46.

*CARDING.* Paul Litty. Swiss P. 240 769, Sept. 20, 1943.

Process for continuous cleaning of card cylinder filletting. TTD:10-46.

## Spinning III 2

*DOFFING.* Assigning doffer's task simplified by table. F. H. Gunther & Marcus Gross. *Textile World 96,* No. 6, 139, 212, 216 (June, 1946).

Assignment of doffing tasks based on time studies is discussed with examples. TTD:10-46.

*SPINNING.* Double-drive cotton spinning frame. Filex. *Textielwezen 2,* 35-6 (Jan. 1946).

The only advantage of the double-drive spinning frame is that it permits a production increase of about 23%. The increase is achieved at the expense of the workers, but since on the average a spinning frame operator's time is only about 75% occupied, it should be easy to absorb the additional work load. TTD:10-46.

*WOOL SPINNING.* Prevention of faulty yarns. Anon. *Wool Record & Textile World 69,* 1228-9 (June 6, 1946).

The rubbing motions in drafting woolen yarns are discussed and the danger of overrubbing (whereby fibers are likely to set too quickly during twisting) emphasized. TTD:10-46.

*WOOLEN YARN.* Developments in woolen and worsted yarn manufacture. P. P. Townend. *J. Textile Inst. 37,* P337-49 (July, 1946).

A general review of the problems involved.
LWR TTD:10-46.

*WORSTED SPINNING.* Progress in worsted spinning research. J. G. Martindale. *J. Textile Inst. 37,* P350-70 (July, 1946).

A general review of techniques.
LWR TTD:10-46.

*YARN CALCULATIONS.* Progressive worsted yarn calculations. Tex. *Wool Record & Textile World 70,* 242-3 (Aug. 1, 1946).

Basic length and weight counts standards for woolen, worsteds and cotton are given with examples. TTD:10-46.

*YARN TWISTER.* Otha A. Hitt (to E. I. du Pont de Nemours & Co.). USP 2 406 768, Sept. 3, 1946.

An uptwister machine has an improved bobbin cap locking device which, while not loosening even at high speeds, may be easily released for removal of the cap from the spindle. TTD:10-46.

*TRAVELER RING LUBRICATION.* Frank S. Pollock, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 406 901, Sept. 3, 1946.

Improved lubrication of the traveler of a spinning frame, whereby lubricant drained from the bearings is recovered, filtered, and reused increases efficiency in the high speed winding and twisting of artificial yarns. TTD:10-46.

*TWISTING SPUN RAYON.* John K. Whisnant (to Am. Enka Corp.). USP 2 407 358, Sept. 10, 1946.

A cabled rayon yarn is produced by unwinding and twisting yarn (while still wet) from 2 or more cakes. This yarn is particularly for use in reinforcing cord tires. TTD:10-46.

*MULE CARRIAGE ALIGNMENT.* H. & I. Brooke, Brit. P. 575 120. *Textile Mfr. 72,* 333 (June, 1946).

A means of guiding the forward and reverse motions of mules. TTD:10-46.

*WIPING DOWN MULES.* J. Briscoe (to Cannon Bros., Ltd.). Brit. P. 575 407. *Textile Mfr. 72,* 334 (June, 1946).

A wiping-down motion for spinning mules functions automatically through 2 wires, one of which is a guide wire running from end to end of the mule carriage. TTD:10-46.



*SPINNING MULE.* R. Fairclough. Brit. P. 575 584. *Textile Mfr. 72,* 335 (June, 1946).

The setting-on rod of a mule is actuated by a safety device to stop the machine. TTD:10-46.

*SPINNING.* Saco-Lowell Shops. Swiss P. 240 602, Aug. 24, 1942.

Reversing motion for ring spinning frames. TTD:10-46.

## Winding III 3

*WINDING.* Spooling or winding in the yarn industry. J. Coorevits. *Textielwezen 2,* 67-9, 115-7 (Feb., Mar., 1946).

Winding and cross-winding methods are described and illustrated for production of conical, double conical, bottle-shaped and cylindrical yarn packages. Cross-wound conical bobbins have numerous advantages, particularly for filament silk and rayon, but the rapid reversal of motion tends to make the yarn shiny and the wound bobbins must be handled carefully to avoid unravelling at the edges. The relative merits of the other types of yarn package are also discussed. TTD:10-46.

*BOBBIN MARKING.* Otto W. Schlums (to Whitin Machine Wks.). USP 2 404 462, July 23, 1946.

Yarn identification is facilitated by an automatic marking mechanism for bobbins as they come from a winding machine. This device affords unlimited marking range at the same time eliminating the hand marking commonly done heretofore. TTD:10-46.

*YARN WINDER.* Louis M. Cotchett, Lester Campbell & Ferdinand F. Stange (to Foster Machine Co.). USP 2 407 366, Sept. 10, 1946.

An improved semi-automatic winding machine with selectively operable bobbin doffing means, winds yarn into packages with a minimum of attention from the operators. TTD:10-46.

*WINDING RAYON.* C. C. Vanderhooven. Brit. P. 575 507. *Textile Mfr. 72,* 334 (June, 1946).

Uniform packages of freshly-spun rayon are spirally wound upon spinning bobbins so that they are permeable to after-treating liquids. By means of an improved thread guide suspended from a traverse bar, the humps at the ends of a package are eliminated. TTD:10-46.

*BOBBIN IDENTIFICATION.* Gustaf S. Beckman (to Universal Winding Co.). Can. P. 436 787, Sept. 3, 1946.

An improved bobbin identifying device on a winding machine consists essentially of a number of vials of marking liquid that are moveable lengthwise of the bobbins. TTD:10-46.

*WINDING.* Walter Otto. Swiss P. 240 603-4, Apr. 22, 1944.

Device for cutting yarn ends on automatic winders and a device for doffing wound bobbins on a winder. TTD:10-46.

*WINDING.* Maschinenfabrik Schärer. Swiss P. 240 770, Dec. 30, 1942.

Device for mechanical winding of yarn on double flange bobbins. TTD:10-46.

*WINDER.* Eugen Wyss. Swiss P. 240 771, Sept. 9, 1943.

Winding frame with controlled thread guide. TTD:10-46.

**Yarn processing** **III 4**

*PROCESSING FANCY YARNS.* Norman Crosland. *Wool Record & Textile World 69,* 1390, 1392 (June 27, 1946).

Initial twisting and binding in 1 operation by means of a special flier having short arms splayed outwards achieves a certain economy of production in processing fancy yarns. TTD:10-46.

*RAYON CAKE PURIFICATION DEVICE.* Anon. *Rayon Textile Monthly 27,* 439 (Aug. 1946).

An improved purification system is briefly noted. TTD:10-46.

*YARN CONDITIONING.* New developments in textile conditioning. M. Trioen. *Textielwezen 2,* 307 (July, 1946).

The Uster conditioning apparatus utilizes high frequency dielectric heat for conditioning yarn packages or loose fiber masses. The machine uses 750 W. and conditions a 50 g. bobbin in 20 min., or a 150 g. bobbin in 60 min. The Uster twist control machine also utilizes high frequency currents. It measures yarn diameter accurately at speeds from 1 to 10 meters/min. It occupies a space about 18 x 12 x 16 inches, weighs about 50 lbs. and uses about 50 W. of current. TTD:10-46.

*ARTIFICIAL YARN TREATMENT.* Arthur B. Richardson & Donald C. Thompson (to Am. Viscose Corp.). USP 2 405 520, Aug. 6, 1946.

Cakes of artificial yarn are uniformly and rapidly impregnated with a treating liquid (e. g. for oiling or softening) by a spraying device. TTD:10-46.

*YARN PROCESSING.* Geo. W. Seymour & Walter Brooks (to Celanese Corp. of Am.). USP 2 407 105, Sept. 3, 1946.

A cellulose acetate yarn of greater uniformity and strength is obtained by applying an improved lubricant prior to winding and twisting, passing the yarn through a hot aqueous bath, stretching in presence of a softening medium and saponifying. Example of a yarn lubricant: white mineral oil 77.5, sulfonated olive oil 5, sperm oil 2.5, and triethanolamine oleate 15 wt.%. TTD:10-46.





*CONDITIONING YARN.* Am. Viscose Corp. Brit. P. 575 531. *Textile Mfr. 72,* 334 (June, 1946).

In order to give a soft, pliable feel to yarns they are treated with a conditioning liquid consisting of waxy solids with melting points of 30-70°C. TTD:10-46.

*OILING RAYON YARN.* Nat'l. Oil Products Co. Brit. P. 575 570. *Textile Mfr. 72,* 74a (June, 1946).

A pliable, artificial, high-twist yarn, having an excellent hand and little tendency to snarl, is produced by applying to the yarn a hydrogenated fatty oil (with a melting point above 30°C), twisting, and heat-setting to coalesce the oil. TTD:10-46.

**Yarn products** **III 5**

*TIRE CORD.* From the incandescent lamp to tire cord. Nick A. Reno. *Textielwezen 2,* 267-8, 303-5 (June, July, 1946).

A historical review of the development of rayon and its adaptation to the manufacture of tire cord. Filaments made by Edison and Swann in their search for fibers which could be carbonized to make lamp filaments were predecessors of rayon. TTD:10-46.

*BRUSH BRISTLE.* Carl W. Coates (to Johnson & Johnson, Ltd.). Can. P. 436 638, Aug. 27, 1946.

A brush bristle comprises a monofil cord of uniform diameter which when knotted will not tend to slip. TTD:10-46.

## YARN TO FABRIC IV

*FABRICS.* Textile arts. G. Woedstad. *Textielwezen 2,* 213-7 (May, 1946).

An effort is made to define the art of cloth manufacture by outlining the methods employed in the art and the products produced thereby. TTD:10-46.

**Yarn preparation** **IV 1**

*WARP BEAM.* Oscar V. Payne (to Crompton & Knowles Loom Wks.). USP 2 406 434-5, Aug. 27, 1946.

An improved warp beam has split-sleeve beam heads, with interlocking shell between, such that the warp threads in winding exert sufficient pressure to prevent end-wise slipping of the heads. TTD:10-46.

*WARP WINDING.* Jas. Bolton. USP 2 406 988, Sept. 3, 1946.

An improved method of warp preparation consists in winding the entire number of yarn ends directly from bobbins onto the loom beam, thus eliminating the number of knots in the completed warp and avoiding many intermediate steps. TTD:10-46.

## Warp sizing — IV 2

*WARP SIZING.* Factors and efficiency in warp dressing. S. A. G. Caldwell. *Textile Mfr. 72,* 293-4 (June, 1946).

The sizing of jute and linen warps is discussed. Hot-air drying, without use of cylinders, accelerates sizing. TTD:10-46.

## Weaving — IV 3

*FANCY WOOLENS AND WORSTEDS.* Anon. *Wool Record & Textile World 70,* 135-6, 138 (July 18, 1946).

Some warping problems, particularly as regards striping threads and the employment of an extra beam, are discussed. TTD:10-46.

*HANDLING WEAVING MATERIALS.* Transport of weft, beams, and cloth in weaving sheds. Anon. *Textile Mfr. 72,* 292 (June, 1946).

Mechanical handling saves time and keeps accumulations of materials between processes at a minimum. TTD:10-46.

*KNOTS.* Let's knot—and let's do it the right way. Anon. *Textile World 96,* No. 6, 101-5 (June, 1946).

The method of tying a weaver's knot is described in detail with the aid of diagrams and photographs. A double loom weaver's knot, best for slippery yarns (e. g. nylon) where the regular weaver's knot will not hold, is also described and illustrated. A velvet and a creeler's knot are also explained. TTD:10-46.

*WEAVING—EVOLUTION OF SHEDDING.* R. R. Carter. *Textile J. Australia 21,* 302-7 (July, 1946).

In a brief review of weaving open and closed shedding is discussed. Tappet and treadle shedding, Dobcross and Keighley dobbies and single lift and double lift Jacquards are also briefly described. TTD:10-46.

*WEAVING.* System for facilitating linen weaving. A. de Moerloose. *Textielwezen 2,* 355-8 (Aug. 1946).

A system which employs 4 eccentrics improves the operation of ribbon looms in weaving linen. The system is described and illustrated. TTD:10-46.

## Looms — IV 3 a

*LOOMS.* Pegging lags for drop box looms—some practical hints for overlookers who seek efficiency. Anon. *Silk & Rayon 20,* 866-7 (July, 1946).

Drop and circular box looms are briefly discussed and compared and 7 practical suggestions for overseers are given. TTD:10-46.

*WEAVING.* Mechanical study of the ribbon loom for weaving fabrics. A. van Cauwenberghe. *Textielwezen 2,* 73-6, 123-8, 169-72, 223-5, 272-4, 309-12, 363-6, 475-7, 479-81, 559-61 (Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., 1946).

A detailed illustrated description is presented of the Snoeck and Schönherr ribbon looms and their operation. Proper placing of the loom in the weave room and proper illumination are important factors in successful operation. TTD:10-46.

*FILE FABRIC LOOM.* Saml. P. Parker (to Callaway Mills). USP 2 405 975, Aug. 20, 1946.

A loom for weaving pile fabrics, in addition to supplying ground and pile warp yarns, has a loop-forming carrier extending across the warp, the carrier being provided with cooperating movable hooks that draw the pile warp yarns out of the shed to form loops. The loops, formed during periodic stopping of the weaving, may be left uncut or may be cut by a severing device which functions during the time the picks are being inserted for the next weaving operation. TTD:10-46.

## Loom parts — IV 3 b

*CLEANING LOOM BOBBINS.* Cleaning silk and rayon loom bobbins. Anon. *Textile Mfr. 72,* 305 (June, 1946).

By means of compressed air and a revolving brush a high speed machine (Terrell model L) strips 140 bobbins per minute. TTD:10-46.

*HEDDLE FRAME.* Russell P. Drake (to Barber-Coleman Co.). USP 2 401 622, June 4, 1946. (Withdrawn: printed copies not available.)

A supporting frame for heddles with end hooks has a side rail with a parallel channel-shaped bar connected by an anchoring leg and a heddle leg. A latch holds the bar from sidewise movement. TTD:10-46.

*LOOM PICKER.* Wm. A. Blanchard (to Crompton & Knowles Loom Wks.). USP 2 407 054, Sept. 3, 1946.

An improved loom picker consists of a number of layers of felt in which are closely intermingled masses of metallic fibers (e. g. stainless steel, hard brass, or copper). TTD:10-46.

*LOOM PICKER SHOE.* Benjamin W. Brouwer (to Crompton & Knowles Loom Wks.). USP 2 407 056, Sept. 3, 1946.

An improved construction of a picking shoe, such that the straight section of its under surface engages the rocker iron near the end of the picking stroke, facilitates checking of the inward stroke of the picker stick, thus assisting its return to normal outward position. TTD:10-46.

*LOOM SHUTTLE.* John J. Kaufman, Jr. (to Steel Heddle Mfg. Co.). USP 2 407 162, Sept. 3, 1946.

An automatically threading shuttle has an improved threading block, preferably of cast iron, whereby filling

thread is smoothly and easily guided through so that breaking on bobbin transfers is largely eliminated. TTD:10-46.

*PICKER STICK.* Harold Carlson. USP 2 407 398, Sept. 10, 1946.

A picker stick is reinforced with metal collars (e. g. aluminum) at points of strain, and cushioning strips are attached so that wearing qualities are appreciably improved. TTD:10-46.

*MOUNTING BOBBINS IN SHUTTLES.* Adolphe Saurer S. A. Brit. P. 575 030. *Textile Mfr. 72,* 333 (June, 1946).

A bobbin with a backward tapering extension is mounted in a shuttle having a corresponding tapered seating which prevents any play. TTD:10-46.

*LOOM SHUTTLE.* J. P. Mackie (to J. Mackie Sons, Ltd.). Brit. P. 575 305. *Textile Mfr. 72,* 333-4 (June, 1946).

A loom shuttle has an open top permitting automatic or manual insertion of a solid cop while the loom is in operation. TTD:10-46.

*LOOM PARTS.* Adolf Attenhofer. Swiss P. 240 605, Nov. 17, 1943.

A method of making picker sticks. TTD:10-46.

*LOOM PART.* Gebrüder Sulzer A.-G. Swiss P. 240 772, June 11, 1942.

Weaving process in which weft ends projecting from the fabric are cut off; and a device for carrying out this process. TTD:10-46.

## Control devices — IV 3 c

*WEFT TENSION.* G. H. Cartwright (to Tomkinsons, Ltd.). Brit. P. 575 548. *Textile Mfr. 72,* 334-5 (June, 1946).

A carpet loom (e. g. Axminster) has an improved weft-tensioning device, particularly for twisted paper weft threads used as pile backing. TTD:10-46

*STOP MOTION.* A.-G. der Eisen-und Stahlwerke vormals Georg Fischer. Swiss P. 240 773, Sept. 22, 1943.

Loom attachment to initiate shuttle changes and to stop the loom when an end breaks. TTD:10-46.

## Fabric construction — IV 3 d

*ALL-RAYON FABRIC.* Old cloth with new yarns. P. G. Alexander. *Rayon Textile Monthly 27,* 407 (Aug. 1946).

Production of Himalaya cloth as an all-rayon (instead of cotton) fabric is suggested. It would contain a rayon filament warp and a novelty spun rayon filling. TTD:10-46.

*CARPET MANUFACTURE.* W. J. Hopkins. *J. Textile Inst. 37,* P61-71 (Apr. 1946).

The historical background of carpet manufacturing is





presented briefly, followed by discussion of some of the modern carpet weaving techniques: Wilton, Spool Axminster, Jacquard or Gripper Axminster, and Brussels.
LWR TTD:10-46.

*TERRY EFFECT,* fancy to eye, is simple to produce. T. Hargreaves. *Textile World 96,* No. 6, 106-7 (June, 1946).

A brief review of the method of terry cloth weaving, aided by diagrams of the weave design. TTD:10-46.

*TROPICAL WORSTEDS.* R. B. E. Henville. *Textile J. Australia 21,* 233-6 (June, 1946).

Beginning with a historical note the fabrication and processing of tropical worsteds are briefly reviewed in a lecture. TTD:10-46.

*WHAT'S NEW IN FABRICS?* Margot Duff. *Silk & Rayon 20,* 821, 823 (July, 1946).

New weaves in 1 denier filament crepes are briefly discussed. TTD:10-46.

*WOOL FABRICS.* Piece-dyed dress cloths for export. Fancy twist yarns in coating tweeds. Fancy coating tweeds. Color and weave effects. Portex. *Wool Record & Textile World 70,* 75, 77-8, 131, 133, 185, 188, 239-40 (July 11, 18, 25, Aug. 1, 1946).

Direction and degree of twist should be fully utilized with plain and fancy yarns in achieving a wide range of fabric designs. Wool and other fibers (mohair, alpaca, cashmere and angora) frequently contribute to special fabric characteristics. Cheviot, Saxony, Harris, Shetland, and homespun are among the variety of coating tweeds. TTD:10-46.

*WOOL FABRICS.* Worsted suitings for export. Weave design and utility cloth. Worsted costume cloths for export. Portex. *Wool Record & Textile World 69,* 1225-6, 1280, 1282-3, 1336-7 (June 6, 13, 20, 1946).

Variety in styling is achieved by choice of weave design. Marl or twist yarn effects add to the color pattern arrangements. TTD:10-46.

## Weave defects — IV 3 e

*AVOIDING CLOTH DEFECTS* in fulling operations. A. C. Robert. *Textile Age 10,* No. 7, 72, 76 (July, 1946).

Cloth defects from fulling operations may be avoided by correct distribution of heat, moisture, and pressure or friction. Pieces being fulled may be creased or wrinkled if not constantly shaken out or ballooned. TTD:10-46.

*CLOTH DEFECTS.* Weaving faults and their cause. T. G. Creys. *Textielwezen 2,* 25-7, 163-4, 207-9, 217 (Jan., Apr., May, 1946).

Faulty selvedges due to insufficient or excessive ten-

sion on the yarn at the selvedge or to irregularities in the selvedge appear in puckered, loose, ravelled or uneven selvedges. These and other cloth defects are illustrated by photographs, and methods of prevention are considered. TTD:10-46.

*CREASE MARKS* are serious imperfections. H. E. Wenrich. *Rayon Textile Monthly 27,* 420-2 (Aug. 1946).

In a review of weave defects various forms of crease marks made at the loom are discussed and suggestions for their elimination made.
HAM TTD:10-46.

*MINIMIZING CLOTH FAULTS* during weaving. W. Middlebrook, Brocklehurst Whiston Amalgamated, Ltd. *Textile Mfr. 72,* 290-1 (June, 1946).

Some of the commoner weave defects (thick places, or bang-ups, thin places, cracks, iron stains, etc.) are briefly described and practical methods for dealing with them suggested. TTD:10-46.

*MISPICKS.* Careful adjustments will reduce seconds due to mispicks. Eugene P. Shremp. *Textile World 96,* No. 6, 129, 212 (June, 1946).

Mispicks should be distinguished from broken picks in that absence of filling extends the full width of fabrics. Careless weaving and faulty stop motions are common causes. TTD:10-46.

*SHEDDING ADJUSTMENTS.* D. C. Snowden, Leeds Univ. *Wool Record & Textile World 70,* 189-90, 192, 194 (July 25, 1946).

Reduction of weaving faults, through shedding adjustments, 3 of which are described, is discussed in some detail. TTD:10-46.

*WEFT CUTTING.* D. C. Snowden, Leeds Univ. *Wool Record & Textile World 70,* 79-80, 82 (July 11, 1946).

The causes of weft cutting, an occurrence equally annoying to weaver and tuner, are briefly discussed and suggestions for prevention given. The weft may be cut in the shuttles, boxes, at the box mouth, and at the temples. TTD:10-46.

## Knitting — IV 4

*UNDERWEAR KNITTING MILLS* in Germany. Roscoe Hill, W. J. Westaway Co., Ltd. *Can. Textile J. 63,* No. 15, 38-9 (July 26, 1946).

A brief summarized report discusses particularly the use of substitute yarn and underwear finishing. TTD:10-46.

## Knitting machines — IV 4 a

*KNITTING MACHINES.* Mill gives operating hints on new circular-knit machines. Geo. J. Speizman, Elbert Mills, Inc. *Textile World 96,* No. 6, 108-9 (June, 1946).

Maintenance, cleaning, and oiling schedules are among the details given for operating an MJ model circular machine. TTD:10-46.



*WARP KNITTING MACHINE.* New British warp knitting machine. Anon. *Wool Record & Textile World 70,* 83-4 (July 11, 1946); *Rayon Textile Monthly 27,* 545 (Oct. 1946); *Can. Textile J. 63,* No. 15, 39 (July 26, 1946).

A new warp knitting machine (FNF, Ltd.) employing a latchless needle, is described and illustrated. Production of 800 machines per year is expected in 1948. TTD:10-46.

*KNITTING MACHINE.* Willard W. Bardsley (to Wardwell Braiding Machine Co.). USP 2 406 525, Aug. 27, 1946.

A knitting machine for applying a knitted sheath to electrical wires and the like has an improved bearing construction that steadies the jacks and controls their reciprocating motion, preventing play and back lash. TTD:10-46.

*HOSIERY KNITTING.* Oscar Fregeolle (to Hemphill Co.). Australian P. 121 938, Aug. 22, 1946.

On a circular, independent needle knitting machine an improved method separates the yarns in forming a pile or terry loop fabric at the inner face of the heel, sole and toe of half hose, a body yarn being fed from a vertically movable finger at the throat level of the sinkers and a pile yarn from a pivotally mounted finger at the sinker nib level. TTD:10-46.

*CIRCULAR KNITTING MACHINE.* Henry H. Holmes (to Wildt & Co., Ltd.). Can. P. 436 547, Aug. 20, 1946.

An improved circular knitting machine consists essentially of a rotary plane and a rotary rib cylinder having double-ended needles and a lap striking mechanism whereby a design thread is supplied to the needles. TTD:10-46.

## Knitting machine parts — IV 4 b

*KNITTING MACHINE NEEDLES.* Rudolph Bassist. USP 2 406 579, Aug. 27, 1946.

By means of electro-magnetic needle control, a knitting machine employing a spring beard type of needle (whether in a warp or circular knitting machine) dispenses with the usual presser bar. TTD:10-46.

*KNITTING MACHINE YARN FEED.* Ezekiel Killian (¼ each to E. Louis, Saml. R., & Myer E. Kotzen, & Howard C. Mohn Hosiery Co., Inc.). USP 2 406 775, Sept. 3, 1946.

An improved yarn feed for a circular knitting machine (particularly the Banner type) that produces seamless hosiery, eliminates the necessity for separate yarn feeding devices to form terry loops and to effect plating. TTD:10-46.

*KNITTING MACHINE CARRIER.* Rudolf J. Scheller. USP 2 407 103, Sept. 3, 1946.

An improved yarn carrier for a full-fashioned knitting machine has spring clamps for securing severed yarn after a defective stocking blank has been detected, thus saving an appreciable amount of yarn and eliminating the necessity of rethreading before a new knitting operation. TTD:10-46.

*FABRIC TAKEUP.* Raymond H. Carhart (to H. Brinton Co.). USP 2 407 397, Sept. 10, 1946.

An improved fabric takeup for a circular knitting machine, located underneath the machine, maintains the fabric under tension during knitting and allows easy removal of a completely or partly filled roll of cloth. No additional floor space is necessary. TTD:10-46.

*KNITTING PATTERN.* J. H. Clarke (to N. Corah & Sons, Ltd.). Brit. P. 575 702. *Textile Mfr. 72,* 335 (June, 1946).

A knitting machine has a pattern-making mechanism by which the jacks may be selectively depressed. TTD:10-46.

*KNITTING.* F. N. F., Ltd. Swiss P. 240 849, Mar. 18, 1944.

A method for making a knitting machine needle, and needles made by this method. TTD:10-46.

## Control devices — IV 4 c

*CLOTH MEASURER.* Jos. A. Firsching. USP 2 406 140, Aug. 20, 1946.

A cloth measuring device for a knitting machine measures a predetermined length of cloth and automatically stops the machine when such length has been knitted. TTD:10-46.

*FABRIC TAKEUP.* Oscar Fregeolle (to Hemphill Co.). USP 2 406 285, Aug. 20, 1946.

On a circular, independent needle knitting machine a supplementary fabric takeup maintains an even tension on such unsymmetrical portions as the heel and toe pockets, thus assuring effective casting off of loops. TTD:10-46.

## Fabric construction — IV 4 d

*NYLON HOSE.* Proper handling of nylon produces more uniform hose. Anon. *Textile World 96,* No. 6, 131, 208, 210, 212 (June, 1946).

Knitting seamless and full fashioned nylon hose is discussed. Polyvinyl alcohol size is commonly used on nylon yarn, the yarn being stored in an atmosphere of 50% r.h. or less. Proper yarn tension is important for good selvedges. TTD:10-46.

*KNITTED GIRDLE.* Leon Silman. USP 2 406 969, Sept. 3, 1946.

Full-fashioned or shaped garments, especially girdles, may be knitted in 1 piece on a flat bed machine or (by modification) on a circular knitting machine (such as a Scott & Williams or a Hemphill) at appreciably less cost than such garments that have been cut to shape and sewn together. TTD:10-46.

*HOSIERY KNITTING.* Albert E. Collidge, Edwin C. Dawes & Thos. A. Gilbert (to Klinger Mfg. Co., Ltd.). Can. P. 436 526, Aug. 20, 1946.

An improved method of forming the foot portion of a stocking consists in knitting separate upper and lower flaps by reciprocatory knitting and joining the edges of the flaps then forming the remainder by circular knitting. TTD:10-46.

*HOSIERY KNITTING.* Arnold F. Verbeek (to Kalio, Inc.). Can. P. 436 872, Sept. 10, 1946.

Stockings having French heels and feet are knitted on a straight bar knitting machine by forming the leg and foot as a continuous fabric and connecting the sole to the heel courses by transfer loops. TTD:10-46.

## Pile fabrics — IV 5

*NYLON* as material for pile fabrics. A. Ellis. *Textile Mfr. 72,* 287-8 (June, 1946).

The possibility of using nylon in pile fabrics, carpets, rugs, etc. (either alone or with mohair and cross-bred, worsted fiber) is being investigated. The use of nylon in astrakhan and moquette fabrics is discussed in some detail. TTD:10-46.

## Fancy fabrics — IV 7

*LACE INDUSTRY.* W. I. Taylor. *J. Textile Inst. 37,* P421-9 (Aug. 1946).

The industry is briefly surveyed and 6 different types of machines used discussed in some detail: (1) bobbinet or plain net, (2) curtain, (3) warp, (4) levers, (5) embroidery, (6) Barmen. TTD:10-46.

## Fabric processing — IV 8

*NEW TENTERS* announced by Butterworth. Anon. *Rayon Textile Monthly 27,* 437 (Aug. 1946).

A mercerizing tenter that can operate at speeds up to 100 yd/min. (250 yd/min. for straight automatic tentering) is described and illustrated. TTD:10-46.

*TUBULAR FABRIC.* Lever Bias Machine Corp. Brit. P. 575 198 & 575 215. *Textile Mfr. 72,* 333 (June, 1946).

Tubular fabric is formed by joining sheet material with a flat seam by means of a machine. TTD:10-46.

## Fabric applications — IV 9

*COATED FABRIC.* Ernest A. Rodman (to E. I. du Pont de Nemours & Co.). USP 2 404 313, July 16, 1946.

A flexible, nontacky vinyl resin coating composition

for textile fabrics consists of a plasticized vinyl chlorine-vinyl acetate, a preferred plasticizer being azelaic diester of monobutyl ether or ethylene glycol.
TTD:10-46.

*LAMINATED GAS TANK.* David J. Sullivan (to E. I. du Pont de Nemours & Co.). USP 2 405 986, Aug. 20, 1946.

A self-sealing fuel tank, either supported or unsupported by a metal container, is a laminated structure consisting of an outer layer of rubber, layers of plasticized neoprene and a layer of polyamide (nylon type) film (0.05-0.3mm thick) which is essentially impermeable to hydrocarbon liquids. TTD:10-46.

*LAMINATED JOINTS.* John D. Lincoln (to Va.-Lincoln Corp.). USP 2 406 697, Aug. 27, 1946.

An improved joint or corner construction for hollow containers (e. g. boxes) consists of laminated sheet materials (e. g. alternate layers of cotton duck and fiberglas cloth) resin-impregnated and adhesively united under heat and pressure. TTD:10-46.

*COATED SEALING TAPE.* Howard H. Haman & Chas. E. Whalen (to Warren Featherbone Co.). USP 2 406 830, Sept. 3, 1946.

In the manufacture of raincoats and similar waterproofed articles, 2 fabrics, coated with plasticized polyvinyl chloride (or butyral) such as Koroseal, are united by an improved sealed seam construction, whereby the edges are stitched, covered with a waterproof sealing tape and bonded together under heat and pressure. TTD:10-46.

*FUEL TANK FABRIC.* E. V. Giles. Australian P. 122 150, Sept. 12, 1946.

A fuel tank skin consists of a milled wool fabric that may be coated, not impregnated, with rubber or plastic.
TTD:10-46.

*ELECTRIC WIRE INSULATION.* Hugo H. Wermine (to Belden Mfg. Co.). Can. P. 436 488, Aug. 20, 1946.

Electric wire has a flexible insulating cover consisting essentially of a lacquer-impregnated fabric tightly bonded to the core. TTD:10-46.

*COLLAR.* Fritz Hanff & Julius Reimann (to Benjamin Liebowitz). Can. P. 436 921, Sept. 10, 1946.

A collar is constructed of a 2-weft layer fabric with an intermediate layer of stuffer threads which stiffen the fabric when dispersed by solvent action.
TTD:10-46.

*STIFFENED FABRIC.* Heberlein & Co. Swiss P. 240 608, Oct. 20, 1941.

Process for preparing a stable impregnation bath to be used in stiffening fabrics, especially fabrics of natural or regenerated cellulose. TTD:10-46.



## CHEMICAL RAW MATERIALS V

### Plastics V 1

*BONDING WITH SYNTHETIC RESINS* increases tensile strength of yarns. F. A. Westbrook. *Textile Mfr. 72,* 327-8 (June, 1946).

The synthetic resin treatment of yarns, rovings, and fabrics (Dan River's Fiber-Bonding process) is outlined. TTD:10-46.

*CASHEW OIL.* J. van Loon. *Verfkroniek 19,* 31-3 (Mar. 1946).

Cashew shell oil is the source of Cardanol, from which a variety of cashew oil resins can be made. The chief uses are in paints and plastics; some of the resins are used as impregnating compositions, binders and plasticizers. One is used in degumming silk. Cardanol can be resinified in a variety of ways since it is an unsaturated long-chain compound with phenolic groups capable of aldehyde condensation. TTD:10-46.

*CELLULOSE ETHERS.* On preparation and physical properties of alkylated polyhydroxyethylcellulose ethers. Sven Sönnerskog, Mo och Domsjö A. B. *Svensk Papperstidning 49,* 409-11 (Sept. 30, 1946).

Cellulose ethers which are soluble both in water and in certain combinations of organic solvent, and therefore may be applied from either type of medium, may be produced by alkylating low-substituted glycol ethers of cellulose. Alkylation may be with ethyl or butyl chloride. TTD:10-46.

*LAMINATED PLASTICS.* Engineering aspect of laminated plastics. J. H. Jarman. *J. Textile Inst. 37,* P238-48 (July, 1946).

A general survey.
LWR TTD:10-46.

*LAMINATED PLASTICS.* Textile development and its application to laminated plastics. R. A. Bettridge. *J. Textile Inst. 37,* P226-37 (July, 1946).

A general review of lamination.
LWR TTD:10-46.

*CELLULOSE DERIVATIVES.* Jos. E. Bludworth (to Celanese Corp. of Am.). USP 2 402 942, July 2, 1946.

Cellulose derivative compositions (for forming plastics, films, foils, and the like), having increased strength from the addition of a monomeric methacrylate, may be extruded by wet- or dry-spinning to form a yarn of superior breaking strength. Example of a spinning dope: cellulose acetate 25, monomeric methacrylate of monoethyl ether of ethylene glycol 10, benzoyl peroxide 0.01, acetone 75 parts by weight.
TTD:10-46.

*RESIN IMPREGNATED MATERIAL.* Gerhart Weiss (¼ each to Paul Porzelt & Fritz Lunzer). USP 2 406 051, Aug. 20, 1946.

A corrugated sheet material is formed in a continuous operation by impregnating with a resin (such as phenol formaldehyde or vinyl acetate) fibrous material, especially paper or cardboard but also cotton duck, glass fiber cloth, etc. TTD:10-46.

*CELLULOSE ETHERS.* Henry Dreyfus. Can. P. 436 551, Aug. 20, 1946.

High quality cellulose ethers are produced by impregnating cellulose with an aqueous alkali solution, adding toluene, removing the water by distillation, and etherifying. TTD:10-46.

## Surface-active compounds V 4

*AGENT FOR WOOL.* Anon. *Chem. Industries 59,* 94 (July, 1946).

Maxitol No. 10 (Dexter Chemical Corp.) is a highly sulfated oil that assists in level dyeing of wool. TTD:10-46.

*PETROLEUM IN TEXTILE INDUSTRY.* R. B. Baillie, Shell Co. of Australia, Ltd. *Textile J. Australia 21,* 300-1 (July, 1946).

The many uses of petroleum products in the textile industry are reviewed: as lubricants, emulsifiers, etc. TTD:10-46.

## CHEMICAL PROCESSING VI

*DRYING.* Supplementing steam with infrared speeds up drying. Geo. Ladd. *Textile Age 10,* No. 7, 55-6, 59-60 (July, 1946).

Installation of supplementary infrared drying equipment at several different mills has resulted in an appreciable increase of production at comparatively low cost. Four different units are illustrated, using 500 and 1000 W. lamps. TTD:10-46.

*DRYING MACHINES.* Electronic control of cloth-drying machines. N. H. Chamberlain. *J. Textile Inst. 37,* P249-62 (July, 1946).

The mathematics for a continuous non-hunting automatic dryer control system are presented. A detector circuit and control mechanism whereby continuous drying is controlled are described.
LWR TTD:10-46.

*FULLING.* Avoiding cloth defects in fulling operations. A. C. Robert. *Textile Age 10,* No. 6, 56, 58-60 (June, 1946).

Wide variations in weight, finish, and handle of woolen cloth can be controlled by more careful shrinkage calculations prior to the fulling process. TTD:10-46.





*LUSTERING COTTON.* Trend toward mechanical lustering of cotton noted. Christopher S. Jones. *Textile Age 10,* No. 6, 62, 64-5 (June, 1946).

Mercerization and calendering and schreinering are the 2 processes (the one chemical and the other physical) by which artificial luster is produced on cotton fabrics. The double process of mechanical lustering of cotton fabric (by calendering and schreinering) after first mercerizing it is briefly discussed. TTD:10-46.

*NYLON.* Single end sizing of nylon. Anon. *Rayon Textile Monthly 27,* 82-3 (Feb. 1946).

The sizing of nylon yarn is necessary in order to obtain good knitting characteristics, particularly in producing full fashioned hosiery. A technique for sizing is offered along with 24 practical suggestions for machine sizing.
LWR TTD:10-46.

*FINISHING IMPREGNATED FABRICS.* Howard Snow & Sara D. Pickard (to Southern Friction Materials Co.). USP 2 402 689, June 25, 1946.

A resin impregnated fabric, which upon curing tends to stiffen and harden, is immersed in a hot water or steam bath and then, after suitable softening has occurred, is passed through an abrading machine having a number of rotating rolls covered with sand paper, the crust or surface impregnant being thus more easily removed with a minimum generation of heat, insufficient to damage the fabric. TTD:10-46.

*MILLING WOOL ACETATE BLEND.* Alan S. Cluley & Tom G. Allen (to Courtaulds, Ltd.). USP 2 407 602, Sept. 10, 1946.

An improved finish is obtained on fabrics composed of blends of wool and cellulose acetate staple fiber by milling the fabric in the presence of a plasticizer for the acetate such as dimethyl phthalate. TTD:10-46.

*MILLING FABRICS.* A. S. Cluley & T. G. Allen (to Courtaulds, Ltd.). Brit. P. 575 072. *Textile Mfr. 72,* 333 (June, 1946).

By adding a plasticizer for the acetate a fabric containing a blend of wool and cellulose acetate fiber can be given a satisfactory milled finish. In an example woven fabric is scoured with a soap solution, impregnated with an aqueous emulsion of dimethyl phthalate, squeezed, impregnated with a soap solution, milled for 75 min. at 35-40°C, washed and dried. TTD:10-46.

*DRIER.* H. W. Chatfield (to Jenson & Nicholson, Ltd.). Brit. P. 575 566. *Textile Mfr. 72,* 335 (June, 1946).

Cloth after a proofing treatment in a bath is passed by rollers into a drying chamber consisting of a light framework covered with double layers of asbestos cement sheets, the layers being separated by an insulating air space. TTD:10-46.

*PROCESSING CELLULOSIC MATERIAL.* Henry Dreyfus. Can. P. 436 919, Sept. 10, 1946.

The properties of cellulose acetate and the like are improved (such as in waterproofing) by padding with a solution of an octadecyl isonitrile and heating to 100-140°C for ½-2 hours. TTD:10-46.

*FULLING WOOL.* Wallace P. Heintz & Walter H. Zillessen (to Can. Industries, Ltd.). Can. P. 436 620, Aug. 27, 1946.

Wool fabric, after impregnation with a neutral composite reagent consisting of saturated petroleum hydrocarbons and their sulfonates, is fulled and scoured with water free of soap and alkali, to remove the reagent. TTD:10-46.

VARIATIONS IN REMOVAL OF PECTIC SUBSTANCES FROM COTTON YARN IN MERCERIZATION PROCESS. Anon. Booklet of Dexter Chemical Corp. TTD:10-46.

## COLOR VII

### Dyeing VII 2

*BLACK DYEING.* All important question of good black shades. Anon. *Silk & Rayon 20,* 856, 858-9 (July, 1946).

Dyeing black shades, especially on rayons, is surveyed. TTD:10-46.

*DYEING PROPERTIES* of some viscose rayons. Anon. *Textile Mfr. 72,* 328 (June, 1946).

A paper (J. Boulton & J. Wardle) is briefly summarized. TTD:10-46.

*MORDANT DYES.* Notes on dyes and dyeing. Geo. Broun. *Textile Bull. 70,* No. 8, 48, 50 (June 15, 1946).

Various mordant dyes are classified according to chemical structure with examples and color index number. Bottom chroming, meta-chroming, and top chroming are the 3 methods of application which are briefly discussed. TTD:10-46.

*VAT DYE GAINS.* Recently released figures confirm vat dye gains. Anon. *Textile World 96,* No. 6, 137 (June, 1946).

Increased use of vat dyes is shown by government figures tabulated. TTD:10-46.

*VAT DYEING.* Earl W. Clark (to Allied Chem. & Dye Corp.). USP 2 406 586, Aug. 27, 1946.

The dyeing properties of a vat dye are improved by incorporating into it a xanthinic base (e. g. theobromine or caffeine). Addition of caffeine to the printing paste improve its stability, permitting preparation of large batches of the paste that may be kept without excessive loss of dye strength. TTD:10-46.



### Printing VII 3

*PRINTING.* Steaming printed fabrics. J. van der Voorde. *Textielwezen 2,* 255-7 (June, 1946).

Steaming of printed goods coagulates protein vehicles such as casein, and develops certain colors or in the case of vat dyes dissolves the leuco derivatives. Steaming time ranges from 2 minutes for aniline black to 1 or 2 hours for acetate dyes. Strict control is necessary to avoid harmful reactions. For example, steaming of aniline black liberates acids which soon tender the fiber if allowed to remain thereon. TTD:10-46.

*DYE PRINTING.* Alexis Wiazmitinow (to Sandoz A. G.). Can. P. 436 894, Sept. 10, 1946.

A deep, full shade is obtained by a short steaming process on cellulosic textile materials by printing with a paste consisting essentially of a leuco ester-salt of a vat dye, an oxidizing agent, an acid splitting agent, a catalyst, and monoethanolethylenediamine. TTD:10-46.

*PRINTING.* Heberlein & Co. Swiss P. 240 811, July 21, 1944.

Process for making an intaglio printing roll for reproduction of single or multi-color half-tone pictures by a photomechanical method in textile printing, and rolls made by this process. TTD:10-46.

### Color measurement VII 4

*COLOR EFFECTS.* Some observations upon effect of color on absorption and emission of radiation by a textile fabric. W. H. Rees & L. W. Ogden. *J. Textile Inst. 37,* T113-20 (Apr. 1946).

The color of the fabric is an important factor in determining the absorption of solar radiation, but it is of no importance in determining the emission at the long wave lengths associated with body temperature. Principles and techniques that are essential in producing colored fabrics suitable for either cold or hot climates and meeting camouflage needs are briefly presented.
LWR TTD:10-46.

COLOR MEASUREMENT AND ITS APPLICATION TO GRADING OF AGRICULTURAL PRODUCTS. Handbook on method of disc colorimetry. Dorothy Nickerson, USDA. Misc. pub. 580; 1946; 62 pp.; price 25¢.
Reviewed in *Textile Research J. 16,* 345 (July, 1946). TTD:10-46.

### Color defects VII 5

*PRINTING FAULTS.* Faults in rayon screen printing. Technicus. *Rayon Textile Monthly 27,* 428-32 (Aug. 1946).

Marking-off, poor white discharge printing, unevenness, sparking, stickiness, springing and bleeding are among

the problems in faulty printing discussed. Three suggestions for avoiding such troubles are: (1) carefully wash screens immediately after printing, (2) do not print too long with screens likely to fill up, (3) adjust print colors. TTD:10-46.

## PROOFING VIII

*FLAME AND WATERPROOFED FABRICS.* J. Knaggs. Brit. P. 575 028. *Textile Mfr. 72,* 333 (June, 1946).

To render fabrics flameproof and water-resistant they are impregnated with such substances as tricresyl or triphenyl phosphate and calcium stearate or pulmitate or with lead linoleate, or with calcium oleate. TTD:10-46.

*FABRIC TREATMENT.* Anon. *Chem. Industries 59,* 94 (July, 1946).

Permaproof (B. F. Goodrich & Treesdale Laboratories), a chemical treatment that renders fabric mildew-, water-, and flameproof without any tendering effect, may be applied by dip, spray, or paint to tents, awnings, draperies, rugs, etc. TTD:10-46.

*PROBLEM OF FABRIC SHRINKAGE.* F. Bonnet, Am. Viscose Corp. *Rayon Textile Monthly 27,* 403 (Aug. 1946).

A lecture considering rayon fabric shrinking is briefly summarized. TTD:10-46.

*SHRINKPROOFING.* Control of pH aids shrinkproofing. Harold Barnes. *Textile World 96,* No. 6, 127, 216 (June, 1946).

In a review of the various processes for shrinkproofing wool, resin and alcoholic-caustic treatments are said to promise excellent results. Batch processes which interfere with a continuous flow of material, and other processes employing inflammable solvents and those requiring close chemical control are available but difficult and expensive. The wet chlorination process, with its accompanying yellow discoloration, is discussed and improvements suggested in pH control: at pH 8.5 and above no discoloration was found to take place. TTD:10-46.

*SHRINKPROOFING WOOL.* David M. McQueen (to E. I. du Pont de Nemours & Co.). USP 2 406 958, Sept. 3, 1946.

An increased resistance to shrinkage may be imparted to wool and other keratinous materials by treatment with acrylonitrile or styrene in anhydrous ether with I as a catalyst. TTD:10-46.

*GASPROOF FABRIC.* R. Kingan, J. W. C. Phillips & B. H. Wilsdon. Brit. P. 575 379. *Textile Mfr. 72,* 334 (June, 1946).

Fabric, for use as an antigas curtain, is made gas-resistant by applying a finely divided absorbent such as





charcoal, pentonite, levillite, or alumina, which may be fixed to the material with a suitable binder. TTD:10-46.

*WATERPROOFING.* Nelly Gallian-Suter. Swiss P. 240 778, Aug. 25, 1945.

Process for making a water-impermeable product composed chiefly of textile fabric, and products made by this process. TTD:10-46.

## TESTING AND ANALYSIS IX

*PROTECTIVE VALUE OF CLOTHING.* W. H. Rees, Brit. Cotton Industry Research Ass'n. *J. Textile Inst. 37,* P132-53 (July, 1946).

The protective value of clothing is generally considered, with emphasis on the physiological aspects under tropical and cold conditions. Factors such as emission and absorption of radiation, thermal conductivity, air and water vapor permeability, heats of absorption, moisture properties and water repellency are discussed. LWR TTD:10-46.

### Physical properties IX 1

*ABRASION TESTING.* Recent advances in abrasion testing of textiles. F. Raymond Dean, Brit. Cotton Industry Research Ass'n. *J. Textile Inst. 37,* P380-91 (July, 1946).

A visual end-point test shows that abrasion resistance is proportional to the time of exposure toward the described action. Ways of overcoming difficulties due to possible contamination of the abrasive during the test are suggested. Objective measurements of damage include loss in tensile strength, bursting strength, and change in air permeability resulting from abrasion. The yarn abrasion test and its use as a supplement to cloth abrasion testing are discussed. It is shown that reversals may arise in the order of ranking fabrics when the conditions of test (notably the type of abrasive) are altered. This reversal persists under conditions in which the explanation cannot lie in the contamination of the abrasive. LWR TTD:10-46.

*DETERMINING FIBER FINENESS* by means of air permeameter. Geo. W. Pfeiffenberger, Chicopee Mfg. Corp. *Textile Research J. 16,* 338-43 (July, 1946).

A standard fabric permeameter is used with a special chamber for holding fluffed cotton samples, and the permeability observed is correlated with fiber fineness. LWR TTD:10-46.

*DIMENSIONALLY STABLE CELLULOSIC FABRICS.* G. Landells. *J. Textile Inst. 37,* P317-36 (July, 1946).

The causes of dimensional instability are discussed preliminary to the presentation of techniques designed to produce dimensional stability. Chemical modifica-

tion and resin treatment of the cellulose are described along with a discussion on the mechanism of the effects produced.
LWR TTD:10-46.

*FABRIC PERMEABILITY.* Heat and water vapor transfer through fabrics. S. Baxter. *J. Textile Inst. 37,* T39-57 (Mar. 1946).

Heat losses from a dry and wet cylinder at approximately body temperature were measured both with the cylinder uncovered and with the cylinder covered with one or more layers of fabric. From these measurements a diffusion coefficient of water vapor through fabrics and through wool fibers was estimated.
LWR TTD:10-46.

*FABRIC SHRINKAGE.* Relationship between structure and shrinkage in knitted wool fabrics and garments. W. A. Dutton. *J. Textile Inst. 37,* P212-25 (July, 1946).

The mechanical and chemical factors governing relaxation shrinkage, consolidation shrinkage, and felting shrinkage are generally discussed.
LWR TTD:10-46.

*HYSTERESIS AND METHODS* for its measurement in rubber-like materials-I. J. H. Dillon, Firestone Tire & Rubber Co. & S. B. Gehman, Goodyear Tire & Rubber Co. *India Rubber World 115,* 61-8, 76 (Oct. 1946).

A review of the technique and theory for the measurement of hysteresis.
LWR TTD:10-46.

*PERMEABILITY TESTER.* Anon. *Chem. Eng. 53,* No. 10, 137 (Oct. 1946).

The Gurley Permeometer tests air permeability of fabrics, papers, etc.
LCL TTD:10-46.

*PHYSICAL PROPERTIES OF FIBERS* and textile performances. A. B. D. Cassie, Wool Industries Research Ass'n. *J. Textile Inst. 37,* P154-67 (July, 1946).

Fine fiber diameters are essential for flexibility of clothing as well as for providing a large total fiber surface, the relationship of which to heat insulation is developed. It is held that a large torsional rigidity rather than a large Young's modulus imparts to fabrics a light, open, and uniform structure which is necessary for good insulation.
LWR TTD:10-46.

*PROPERTIES OF FIBERS.* Statistical methods for equilibrium moisture correlations. P. J. McCarthy, R. K. Toner & J. C. Whitwell, Textile Research Inst. & Princeton Univ. *Textile Research J. 16,* 307-17 (July, 1946).

The details of the methods which were used in arriving at the equilibrium moisture correlations reported previously (TTD:9-46, pp. 422-3) are presented.
LWR TTD:10-46.



*RAISING OF TEXTILE FABRICS.* C. S. Whewell, A. Selin & H. Wood. *J. Textile Inst. 37,* P198-211 (July, 1946).

On the basis of a test of raising efficiency that is described, a number of fibers, including wool and wool substitutes as well as synthetics, are compared. Certain factors affecting the amount of pile produced by raising wool fabrics are also mentioned.
LWR TTD:10-46.

*TESTING FABRICS.* Construction of fabrics for specific purposes. Geo. E. Collins, Brit. Cotton Industry Research Ass'n. *J. Textile Inst. 37,* P392-402 (July, 1946).

Fabrics are best constructed for specific purposes when service trials of fabrics, their testing, and examination of used and destructively tested fabrics are considered.
LWR TTD:10-46.

*TESTING YARN DIAMETERS.* Coil tester accurately gages yarn diameters. A. E. McKenna. *Textile World 96,* No. 6, 120-1, 190 (June, 1946).

A yarn coil-testing machine, useful to spinners and knitters, is described and illustrated. TTD:10-46.

*YARN TESTING.* Testing and control of cotton yarn. Textillabor. *Textielwezen 2,* 119-22, 165-8, 259-61, 359-61, 472-3 (Mar., Apr., June, Aug., Sept., 1946).

Accurate testing of yarn strength without previous conditioning in a controlled atmosphere is impossible, but sufficient accuracy may be attained for certain routine control purposes not requiring exact moisture control. For precision testing it is necessary to know the denier of the yarn, the exact length of the test piece, the number and sources of samples taken, the rate of applying the load, the precision and condition of the tester, the skill and care employed by the operator, and the method of computing averages.
TTD:10-46.

*YARNS FOR SPECIAL PURPOSES*—effect of filament size. D. Finlayson, Brit. Celanese, Ltd. *J. Textile Inst. 37,* P168-80 (July, 1946).

The effect of filament size on yarn properties is discussed. Drape, handle, ease of creasing, recovery from creasing, softness and limpness of fabrics, in relation to filament size are factors considered and treated mathematically. In yarn properties fineness of filament affects the general bulk, crepe effect, light scattering of dyed yarns and the flexibility of yarns.
LWR TTD:10-46.

## Chemical analysis — IX 2

*CELLULOSE DEGRADATION.* Study of chemical degradation of cellulose in cotton tire cords as result of road service and wheel testing carried to failure. Carl M. Conrad, W. Jas. Lyons & Verne W. Tripp, Southern Regional Research Laboratory. *Textile Research J. 16,* 324-8 (July, 1946).

Chemical degradation as indicated by cuprammonium fluidity was studied in relation to a series of road service tests and wheel tests carried to failure. The results indicate that cord failure is not generally due to chemical deterioration.

LWR TTD:10-46.

*HUMIDITY INDICATOR.* Anon. *Chem. Eng. 53,* No. 10, 150 (Oct. 1946).

Eljay Enterprises's Hygro-Ink, applied to paper and dried, indicates humidity by changing color from blue-green to pink and can be used on materials such as cotton cloth, paper, tobacco, etc.

LCL TTD:10-46.

*MOISTURE ADSORPTION* of textile yarns at low temperatures. (R. C. Darling & H. S. Belding). J. C. Whitwell & R. K. Toner, Textile Research Inst. *Ind. Eng. Chemistry 38,* 1203-4 (Oct. 1946).

Criticisms of methods and findings of Darling and Belding (see TTD:5-46, p. 252). Reply by the authors (p. 1204).

WPU, Jr. TTD:10-46.

*MOISTURE DETERMINATION.* Börje Steenberg, Svensk a Träforskningsinstitutet. *Svensk Papperstidning 49,* 394-6 (Sept. 15, 1946).

The Shirley moisture meter utilizes a tube voltmeter for measuring high electrical resistance. Two concentric electrodes are pressed against the test material. The Hart moisture meter compensates part of the anode current by a countercurrent, and the test material is inserted between 2 insulated plates. The Moisto-Graph (Brown Instrument Co.) equips the tube voltmeter with a recording device. The Elmometer, a Dutch instrument, utilizes condenser plates and can measure moisture content in liquids, e. g. down to 0.01% of water in gasoline. TTD:10-46.

*TESTING* of yarns and fabrics—VI. N. Eyre. *Textile Mfr. 72,* 324-5 (June, 1946).

Fluidity determinations for cotton, viscose rayon, silk, and nylon are briefly described in estimating the degree of chemical degradation. TTD:10-46.

## Biological testing — IX 3

*DETERIORATION OF MATERIEL* in tropics. W. G. Hutchinson, Univ. of Pa. *Sci. Monthly 63,* 165-77 (Sept. 1946).

Microbiological attack on a variety of military equipment (optical instruments, electrical instruments, clothing, etc.), tested in a tropical chamber and in an actual tropical climate (Panama Canal Zone) is studied. TTD:10-46.

## CLEANSING — XI

TVATTEKNIK III (LAUNDRY METHODS). Föreningen Rationell Textiltvätt, Statens-Provningsanstalt, Stockholm 26, Sweden, 1946. Price 7.25 kr.

Reviewed in *Textil och Konfektion 6,* 281 (Aug. 1946). TTD:10-46.

## HAZARDS — XII

*ACCIDENTS* due to electrical faults: a safety device. Anon. *Silk & Rayon 20,* 880 (July, 1946).

The Wayne automatic self-winding reel for electrical cables is an improved cable reel which by maintaining a suitable tension, preventing slack or sag, reduces the chances of accidents resulting from frayed, loose cables. TTD:10-46.

*ATMOSPHERIC CONDITIONS* in Australian textile mills. A. J. Ludbrook. *Textile J. Australia 21,* 274, 286-7 (July, 1946).

A department of labor brochure is reviewed. TTD:10-46.

*FIRE PREVENTION.* Protection against fires in textile mills. F. Ireman. *Textielwezen 2,* 77-8 (Feb. 1946).

Although $CO_2$ fire extinguishers are ineffective for cotton dust fires in large rooms, because the jet scatters the dust and dilutes the $CO_2$ with air too soon for effective operation, these extinguishers can be used successfully in closed spaces where the necessary $CO_2$ concentration can be readily built up. TTD:10-46.

*SOLVENT VAPORS* dangerous when uncontrolled. Mable Foy, Safety Research Inst. *Textile World 96,* No. 6, 118-19, 206, 208 (June, 1946).

The maximum concentration allowable for common solvents, varying from 20 to 1000 ppm, is discussed. The greatest hazard seems to exist in the intermittent use of solvents. Most vapors being heavy should be exhausted from below. TTD:10-46.

## TEXTILE MILLS — XIII

### Mill buildings — XIII 1

*MILL CONSTRUCTION.* Trends in textile mill construction. J. Norman Pease. *Textile Bull. 70,* No. 8, 32, 35 (June 15, 1946).

A brief note on mill costs. TTD:10-46.

### Mill machinery — XIII 2

*MACHINERY.* Rustless metals in the textile industry. M. Trioen. *Textielwezen 2,* 547-53 (Oct. 1946).

Monel metal, because of its smooth surface and exceptional resistance to acid and alkaline corrosion, gives

good service in equipment for washing, bleaching, mercerizing, dyeing and finishing fabrics. It is also useful in dry cleaning establishments. Nickel-plated steel has good alkali resistance and is useful in bleaching baths employing $H_2O_2$. Rustless steels and chrome-plated metals have a variety of similar uses. Cu is also successfully used in some varieties of corrosion-resisting equipment. Tabulated data show the resistance of these metals to alkali and to bleaches of the active Cl and peroxide types. TTD:10-46.

*NEW MACHINERY.* New technical developments in the textile industry of Switzerland, Italy and France. Bertil Melin. *Textil och Konfektion 6,* 318-24 (Sept. 1946).

Illustrated description of new developments including an improved spindle; the Rieter ring spinning frame, the Schweiter automatic winder; the Baer continuous yarn tester; and a heat pump for transferring thermal energy to storage or for utilizing the heat in a liquid system. TTD:10-46.

*SLASHING ROOM.* Planning construction of your postwar mill. Jas. Osborne. *Textile Age 10,* No. 6, 82, 84-6, No. 7, 88-90, 92 (June, July, 1946).

Some common problems of slashing, particularly unequal tension and overrunning, are discussed and suggestions made for improving efficiency. The design and construction of the size boxes and of the guide, immersion, and squeeze rolls for a modern slashing department are considered and the sizing operations briefly discussed. TTD:10-46.

## Mill power — XIII 3

*COAL*—necessity for strict economy. W. S. Baskerville, W. H. Allen & Son, Ltd. *Textile Mfr. 72,* 309-11 (June, 1946).

British coal reserves, being limited, indicate a need for the utmost fuel economy. A chart compares coal consumption of various industries including the textile. TTD:10-46.

*ELECTRIC POWER IN MILLS.* Locke Cotton Mills' modernization. Jas. T. Meador. *Textile Bull. 70,* No. 7, 32, 34, 36 (June 1, 1946).

Improvement in electric power facilities as a major part of a modernization program is briefly described and illustrated. TTD:10-46.

*ELECTRICAL DRIVING.* Some aspects of electrical driving in textile factories. F. G. Bennett. Metropolitan-Vickers Electrical Co., Ltd. *Textile Mfr. 72,* 299-301, 304 (June, 1946).

In a brief survey of electrical drives in textile mills the flexibility of layout afforded by individual drives is emphasized. Location of machinery is made independent of line-shaft position, and the likelihood of complete stoppage is removed. The higher cost per horse power for individual drive is an important factor



to be considered in a going mill; in a new mill, however, such cost is probably offset by savings in building costs and millwrighting. TTD:10-46.

*ELECTRICAL POWER.* Do we understand electrical calculations? M. Trioen. *Textielwezen 2,* 457-63 (Sept. 1946).

Methods of calculating the power factor and the cost of electrical operation are set forth and illustrated by calculations relating to textile mill operations. TTD:10-46.

*FUEL ECONOMY* resulting from efficiency in tentering machines. B. R. H. Williams. *Textile Mfr. 72,* 318-19 (June, 1946).

A 26% increase in drying speed along with a reduction of 53° (from 238 to 185°F) in maximum temperature have resulted from improvements to a 4-bay tenter. TTD:10-46.

*INDUSTRIAL TRANSMISSION PROBLEMS*—rope and belt. J. Hornsby, British Belting & Asbestos Ltd. *Textile Mfr. 72,* 320-3, 332 (June, 1946).

Flat belt drives commonly employed in group driving, are considered in some detail, it being noted that V-belt drives are generally to be found on individual drives. Three types of belting in general use (leather, cotton base, and hair base) are discussed and their stress-strain characteristics compared. Pulleys and their function in drives are discussed with the aid of diagrams. TTD:10-46.

*MOTOR MAINTENANCE.* Hints on control gear for your maintenance staff. Anon. *Silk & Rayon 20,* 874-5, 877 (July, 1946).

Careful installation and systematic care of motor control gear are necessary for prolonged life with a minimum of repair. TTD:10-46.

*TEXTILE MACHINE DRIVES.* Individual and group drives in the textile industry. M. Trioen. *Textielwezen 2,* 269-71, 313-5 (June, July, 1946).

Group drives have some general disadvantages as compared with individual drives in operating textile machines. Calculations are presented to show the efficiency of motors as related to operating conditions and to the factors which must be evaluated in deciding between individual and group drives. TTD:10-46.

## Mill materials — XIII 4

*NEW ALLOYS* for severe corrosion services. M. G. Fontana, Ohio State Univ. *Chem. Eng. 53,* No. 10, 114-15 (Oct. 1946).

Duriron's 2 new alloys Chlorimet 2 and Chlorimet 3, Handle $H_2SO_4$, HCl, wet Cl, NaCl, hot acetic acid, bleach solutions, and many other corrosive solutions. LCL TTD:10-46.

**Atmospheric control** **XIII 6**

*AIR CONDITIONING.* Modern textile mills make their own weather. Henry Miedendorp. *Rayon Textile Monthly 27,* 433-5 (Aug. 1946).

The merits of air conditioning for textile mills in terms of increased comfort for operators and of improved machine efficiency are discussed. TTD:10-46.

*ATMOSPHERIC CONTROL.* Air conditioning in the textile industry. H. R. Neu. *Textielwezen 2,* 29-31 (Jan. 1946).

European standards of moisture content for conditioned textile fibers range from 8.5% for cotton to 18.25% for combed wool, with flax and hemp intermediate at 12%. Apparatus for conditioning such fibers is described. Air conditioning in mill rooms is also discussed, and illustrated by a chart showing heat content of air as a function of temperature in connection with the behavior of cotton and wool fibers under the charted conditions. TTD:10-46.

*FACTORS IN INDUSTRIAL VENTILATION.* E. Howlett. *Textile Mfr. 72,* 306-8 (June, 1946).

The characteristics and efficiencies of various types of ventilating fans are discussed and compared. TTD:10-46.

**Process control** **XIII 7**

*INSTRUMENTS.* Process unit control instruments, their installation and initial operation. Harry F. Moore, Standard Oil Development Co. *Instruments 19,* 579-83 (Oct. 1946).

Satisfactory performance of control or recording instruments requires their installation by trained men and checking of them after installation. Without these precautions, little satisfaction can be expected. Examples in the petroleum industry are given.
LCL TTD:10-46.

*NEW ELECTRIC HYGROMETER.* Anon. *Rayon Textile Monthly 27,* 435 (Aug. 1946).

The Aminco-Dunmore electric hygrometer for high-precision humidity measurement and control is briefly described. TTD:10-46.

**Water supply** **XIII 8**

*PURIFICATION OF WATER* by demineralization. J. W. Masselli, Barnstead Still & Sterilizer Co. *Rayon Textile Monthly 27,* 425-7 (Aug. 1946).

The purification of industrial water by the use of resins is briefly described, the process of iron-exchange being simply explained. Capacity of units and cost of water treatment are given.
HAM TTD:10-46.

**BASIC SCIENCES** **XIV**

*CELLULOSE STUDIES.* V. Reducing end-group estimation: new method using potassium permanganate. VI. Determination of carboxyl groups in cellulosic materials. Lejaren A. Hiller, Jr. & Eugene Pacsu, Textile Foundation & Princeton Univ. *Textile Research J. 16,* 318-23, 390-3 (July, Aug. 1946.)

The reducing power of the end aldehyde groups (potential) in cellulose is determined by reaction with acidified $KMnO_4$ and a formula is presented for obtaining the degree of polymerization from the reducing power. A simple procedure for titrating carboxyl groups and cellulosic materials with dilute NaOH solution consists in adding an excess of NaOH and back-titrating with $H_2SO_4$ in the presence of phenolphthalein. The addition of NaCl, previously considered necessary, was found to be of no value.
LWR TTD:10-46.

*CELLULOSE XANTHATE.* Protective colloid action by cellulose xanthate. Philip C. Scherer, Va. Polytechnic Inst. *Rayon Textile Monthly 27,* 409-14 (Aug. 1946).

Experimental data indicate that cellulose xanthate can act as an agent capable of retaining unchanged cellulose in solution. Under conditions normally producing immediate precipitation, this protective action apparently is dependent only upon the amount of xanthate sulfur introduced into the mixture. It is possible that cellulose xanthate may be a mixture of xanthated and unxanthated chains. TTD:10-46.

*FOAM STABILITY.* Foaming volume and foam stability. Sidney Roff, Stanford Univ. *J. Phys. Chem. 50,* 391-401 (Sept. 1946).

The amount of foam formed in a solution depends upon a method of production and properties of the liquid, but stability depends primarily upon the liquid. A method for measuring foam volume by high speed whipping is described. Foaming agents may modify either or both the amount and stability of foam.
EKF TTD:10-46.

*GAS MASKS.* Improvements in gas mask faceblanks-II. S. H. Katz & Irving Pockel, Chemical Warfare Service. *India Rubber World 115,* 69-72, 74 (Oct. 1946).

Procedure is described in fitting gas mask faceblanks to average and unusually shaped faces.
LWR TTD:10-46.

*MECHANICAL PROPERTIES OF TEXTILES.* VII. Visco-elastic properties of wool fiber. VIII. Stress-strain relationship of plush fabric. Geo. Halsey & Henry Eyring; IX. System showing distribution of non-Newtonian viscous elements. Sidney Katz, Geo. Halsey & Henry Eyring; X. Analysis of Steinberger's data on creep of cellulose acetate filaments. C. H. Reichardt, Geo. Halsey & Henry Eyring; Textile Foundation & Princeton Univ. *Textile Research J. 16,* 329-37, 378-89 (July, Aug. 1946).

A 3-element model with an unsymmetrical potential barrier and a non-Hookean spring is used to represent

wool in a stress-strain analysis of a wool fiber. The spring-dashpot theory described in previous papers of the authors is applied to the experimental data of Fox & Schwarz. Because of unsatisfactory results obtained from analysis of a large number of stress-strain curves, by the use of the 3-element model (suggesting that the model does not give the correct picture of this fiber), a new model is suggested in which 2 dashpots of equal yield value are present. One dashpot contains a non-Newtonian liquid and the other a liquid which is more nearly Newtonian. This model, however, fails where various rates of elongation are involved. From analysis of Steinberger's data (see *Textile Research J. 6,* 191 (Feb. 1936)), it is concluded that they are insufficient for other than a qualitative study. However, it is indicated that properties of the cellulose acetate fibers change progressively from 0 to 60% r. h., that there is a great change between 60 and 70% r. h., and that from 70% upwards there is relatively little further change.
LWR TTD:10-46.

*MICELLE FORMATION.* Determination of critical concentrations for formation of soap micelles by spectral behavior of pinacyanol chloride. M. L. Corrin, H. B. Klevens & Wm. D. Harkins, Univ. of Chicago. *J. Chem. Physics 14,* 480-6 (Aug. 1946).

An abrupt change in physical properties of a soap solution over a short concentration range is taken as the critical concentration for the formation of micelles. Pinacyanol chloride has characteristic absorption spectra in aqueous solutions and solvents, and the absorption in soap solutions changes to that of the solution in solvent over a narrow soap concentration. This property was utilized in determining the critical concentrations for a series of soaps: K laurate, 0.023-0.024 *M;* K myristrate, 0.006 *M;* Na cetyl sulfate, 0.00036-0.00052 *M.* K dehydroabietate, 0.025-0.032 *M;* K oleate, 0.0007-0.00012 *M.* All data are for 25.8°C except Na cetyl sulfate, which was measured at 35.8°C.
EKF TTD:10-46.

*SPREADING PRESSURE.* Pressures against which oil will spread on water. E. R. Washburn & E. A. Anderson, Univ. of Nebraska, *J. Phys. Chem. 50,* 401-6 (Sept. 1946).

Preliminary experiments on spreading of lubricating oils on water and steel showed that lower pressures were developed on steel. Oxidation of the oil increased spreading pressures on steel from about 10-25 dynes /cm.
EKF TTD:10-46.

*STATIC* eliminated by grounding or neutralizing. H. S. Knowlton. *Textile World 96,* No. 6, 110-13, 115 (June, 1946).

Elimination of static by grounding machines, by electrical neutralizers, and by humidification alone are discussed. TTD:10-46.



ADVANCES IN COLLOID SCIENCE. II. SCIENTIFIC PROGRESS IN FIELD OF RUBBER AND SYNTHETIC ELASTOMERS. H. Mark & G. S. Whitby, editors. Interscience Publishers, Inc., 215 4th Ave., New York, N. Y.; 1946; 473 pp.; price $7.00.

Reviewed in *Chem. Eng. News 24,* 1970 (July 25, 1946). TTD:10-46.

ADVANCES IN PROTEIN CHEMISTRY. II. M. L. Anson & John T. Edsall, editors. Academic Press, New York City; 1945; 443 pp.; price $6.50.

Reviewed in *Textile Research J. 16,* 344 (July, 1946). TTD:10-46.

## TEXTILE RESEARCH XV

*AMERICAN COTTON.* Strong competitive position is sought by the American cotton industry. A. Johnels & J. Leffler. *Textil och Konfektion 6,* 256-60 (Aug. 1946).

Efforts of the American cotton industry to lower production costs of raw cotton and to improve manufacturing processes or products are described and illustrated. Cotton harvesters are expected to bring down production cost. Illustrations include the McCormick-Deering Harvester, the Fibrograph and a cotton diagram made therewith, the Pressley tester and the Shirley Analyzer. TTD:10-46.

*HOW TO INCREASE PRODUCTION.* D. C. Snowden, Leeds Univ. *Wool Record & Textile World 69,* 1175-6, 1178, 1231-2, 1285-7 (May 30, June 6, 13, 1946).

Economic problems of increased production per man per machine, with particular reference to weaving processes, are discussed, a motion and time analysis being recommended. TTD:10-46.

*LINEN RESEARCH.* Swedish plant processing takes in linen and hemp; linen laboratory and its organization. Indvar Granhall. *Textil och Konfektion 3,* 250-4 (Aug. 1946).

Illustrated description of a new linen research laboratory equipped for artificial retting and for a variety of plant processing and fiber processing investigations. TTD:10-46.

*TEXTILE RESEARCH.* Anon. *Textielwezen 2,* 451-4 (Sept. 1946).

The situation in Belgium with respect to scientific and technical research on textile problems is reviewed. TTD:10-46.

*TEXTILE RESEARCH.* New trends in direction of textile research. A. J. Hall. *Silk & Rayon 20,* 863-5 (July, 1946).

The comprehensive research programs carried on today by the large manufacturers of rayons and dyes are noted as indicative of an important change from the research of a generation ago. TTD:10-46.